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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,313	02/24/2005	Rudolfus Antonius Theodorus Maria Van Benthem	4662-333	1606

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NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER
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CHEUNG, WILLIAM K

ART UNIT	PAPER NUMBER
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1713

MAIL DATE	DELIVERY MODE
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08/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/502,313	<b>Applicant(s)</b> VAN BENTHEM ET AL.	
	<b>Examiner</b> William K. Cheung	<b>Art Unit</b> 1713	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. In view of the amendment filed June 7, 2007, claims 9-12 have been cancelled.

Claims 1-8 are pending.

2. In view of the amendment filed June 7, 2007, the objection of Claims 3, 4, 6, 10 due to minor informalities is withdrawn.

3. In view of the cancellation of claims 9-10, the rejection of Claims 9-10 under 35 U.S.C. 102(b) as being anticipated by Ulmer et al. (US 5,759,522), is withdrawn.

Further, the rejection of Claim 11 under 35 U.S.C. 102(b) as being anticipated by Franz et al. (DE 42 36 058 A1), is withdrawn. The rejection of Claim 12 under 35 U.S.C.

103(a) as being unpatentable over Franz et al. (DE 42 36 058 A1) in view of Judat et al.

(US 6,627,174), is withdrawn. The rejection of Claim 12 under 35 U.S.C. 103(a) as

being unpatentable over Franz et al. (DE 42 36 058 A1) in view of Sakata et al. (JP 02046279), is withdrawn.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulmer et al. (US 5,759,522) in view of Franz et al. (DE 42 36 058 A1) for the reasons adequately set forth from paragraph 6 of the office action December 11, 2007.

*The invention of claims 1-8 relates to a process for the preparation of a copolymer of maleic anhydride and an alkyl vinyl ether, comprising the steps of supplying maleic anhydride and the alkyl vinyl ether and an initiator, together forming a feed flow, through an inlet to a reactor wherein maleic anhydride and the*

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alkyl vinyl ether react to a copolymer of maleic anhydride and alkyl vinyl ether which  
**forms a reaction mixture with the maleic anhydride, the alkyl vinyl ether and the**  
**initiator, wherein the process is a continuous process and the reactor is a loop**  
**reactor, optionally followed by a post-reactor, and wherein the process includes**  
**internally circulating the reaction mixture in such a manner that the reaction mixture**  
**arrives again at the inlet before the maleic anhydride and alkyl vinyl ether have**  
**completely reacted and while a remainder of initiator is still present.**

Applicant's arguments filed June 7, 2007 have been fully considered but they are not persuasive. Applicants argue that the claimed invention relates to process having a lower risk of a "run away" reaction, without the need of precharging the reactor with prepolymerized copolymer. However, such argued feature is not in the claims.

Applicants also argue that the teachings of Ulmer et al. and Franz et al. are not combinable because Ulmer et al. are directed at reducing the volatile organic compounds (VOC) in hair spray, while Franz et al. teach a final product in the outlet has at least 10 weight percent monomer. Therefore, applicants believe that there is no motivation to combine the teachings of Ulmer et al. and Franz et al. to set forth the instant rejection. However, the examiner disagrees because one of ordinary skill would have recognize that the VOCs in Ulmer et al. are solvent carrier, not residual monomer from a polymerization process. Further, it would not be difficult to one of ordinary skill in

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art to recognize that the polymer products of Franz et al. are isolated at the end of the process which do not contain any residual monomer.

Regarding applicants' argument that Franz et al. do not inherently possess the claimed feature "remainder of initiator is still present" because Franz et al. are silent on a step or an apparatus for removing the residual initiators from the disclosed polymerization process, applicants fail to recognize that Franz et al. clearly involves employing a free radical initiator (col. 5, line 25-26) which inherently possess a half life decomposition temperature. Mathematically, the half-life decomposition characteristics of the peroxide means that the decomposition is fast initially and then slow down as the concentration of the peroxide is lowered or consumed by the polymerization process. Unless Franz et al. disclose the removal of the initiator during the polymerization process, there is not a reasonable basis for any one of ordinary skill in art to believe that the process has consumed all the peroxide or there is no residual initiator in the polymerization process. Therefore, the examiner has a reasonable basis that the claimed "remainder of initiator is still present" feature is inherently possessed in Franz et al.

Regarding applicants' argument that subsequent heating in the post reactor of claim 8 is critical since Ulmer et al. essentially completely reacts with maleic acid in a batch, applicants fail to recognize that claim 8 as written does not support the "post

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reactor" argument. The subsequent heating of claim 8 as written merely the extended time heating of claim 1, which does not necessarily require a post reactor.

In view of the reasons set forth above, the rejection of claims 1-8 is proper.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William K. Cheung, Ph. D.

Primary Examiner

August 10, 2007

**WILLIAM K. CHEUNG**  
**PRIMARY EXAMINER**